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ABSTRACT

Classroom assessment measures, in the past often limited to multiple-choice and standardized tests, now can involve the creation of portfolios, or collections of pieces of work which the student selects as the best representation of his or her efforts, progress, skills, and accomplishments. Portfolios also usually include teacher evaluations and student self-reflections and can come in several varieties: (1) "developmental" portfolios document improvement in a designated subject area; (2) "teacher planning" portfolios allow teachers to gauge the ability levels of an incoming class; (3) "proficiency" portfolios can be used to determine graduation eligibility; (4) "showcase" portfolios can assemble the best work done across an entire educational career; (5) "employment skills" portfolios can collect assignments that demonstrate work readiness; and (6) "college admission" portfolios can be solicited by admissions officers to judge an applicant's potential for success at a certain academic institution. To solve problems of storage space and of collecting assignments in various media into a cohesive whole, many schools have begun to store portfolios in electronic form on floppy disks or CD-ROM. Software aids like Roger Wagner Publishing's "HyperStudio" and Claris' "FilmMaker Pro" are highlighted, and examples are given of a high school in New York that has implemented an electronic portfolio program. (Contains 13 references.) (BEW)

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ERIC Digest

Electronic Portfolios: A New Idea in Assessment

by Anna Maria D. Lankes

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Introduction

Teachers and administrators are showing increased interest in becoming part of a "new wave" of assessment in the classroom; assessment which includes authentic and performance-based measures. These methods of assessment allow students to demonstrate desired performance through real-life situations (Meyer, 1992). Such methods of assessment are not limited to multiple-choice and standardized tests, but include projects which require students to demonstrate their problem-solving skills as well as their skills in analyzing and synthesizing information. Several school districts across the United States have reported improved student performance associated with new assessment programs (Herman, 1992). Many schools are developing new methods for measuring students' progress in both the elementary and secondary classroom. One of these new assessment measures, the portfolio, has become increasingly popular, and technology is helping with its creation and management.

What is a Portfolio?

A portfolio at the K-12 education level is essentially a collection of a student's work which can be used to demonstrate his or her skills and accomplishments. An educational portfolio is more than just a group of projects and papers stored in a file folder. It includes other features such as teachers' evaluations and student self-reflections. According to the Northwest Evaluation Association, a portfolio is "a purposeful collection of student work that exhibits the student's efforts, progress, and achievements. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit, and evidence of student self-reflection" (Paulson, Paulson, & Meyer, 1991). A portfolio may be used to demonstrate a student's achievements in specific subject areas such as mathematics and science or it may be used across the curriculum to assess abilities in all subject areas.

Why use a Portfolio?

- **Developmental portfolios.** A teacher who is interested in documenting a student's improvements in writing or mathematics throughout a school year can have the student keep a developmental portfolio containing samples of the student's work along with self-evaluations of specific assignments. Such a portfolio provides specific documentation which can be used for student evaluations and parent conferences.

- **Teacher planning.** Teachers may use an existing portfolio system in order to receive information about an incoming class of students. The teacher may gain a better understanding of the ability levels of his or her students prior to the start of the school year and plan accordingly.
- **Proficiency portfolios.** Central Park East Secondary School in New York City uses portfolios as a means for determining graduation eligibility. Students at this school are required to complete fourteen portfolios which demonstrate their competence and performance in areas such as science and technology, ethics and social issues, community service, and history (Gold & Lanzoni, 1993).
- **Showcase portfolios.** A showcase portfolio can document a student's best work accomplished during an entire educational career. It can include the research papers, art work, and science experiments which best represent the student's skills and abilities.
- **Employment skills portfolios.** Businesses across the country are increasingly interested in viewing student portfolios in order to evaluate a prospective employee's work readiness skills. Students in the Michigan public schools, for example, are creating employability skills portfolios to demonstrate their skills to prospective employers (Stemmer, Brown, & Smith, 1992).
- **College admission portfolios.** Colleges and universities are using showcase portfolios to determine eligibility for admission. By requiring portfolios from prospective students, college or university admissions officers are better able to assess applicants' potential for success at their institutions.

Technology and the Creation of Computer-Based Portfolios

How to store and manage portfolio materials is a concern shared by many educators interested in implementing portfolio programs. In order to keep portfolios which would include papers, projects, and video and audio tapes for a class of students for 13 years (K-12), a school would need several additional classrooms to store this wealth of information. Many educators have been reluctant to implement portfolio assessment programs in their schools because of storage concerns like these. A likely solution to this problem is the creation and storage of portfolios using computer technology.

The terms "computer-based portfolio" and "electronic portfolio" are used to describe portfolios saved in electronic format. Electronic portfolios contain the same types of information as the portfolios discussed earlier, but the information is collected, stored, and

managed electronically. Since current technology allows for the capture and storage of information in the form of text, graphics, sound, and video, students can save writing samples, solutions to mathematics problems, samples of art work, science projects and multimedia presentations in one coherent document. A single computer with a large storage capacity can store portfolios for all of the students in a class. With more students creating multimedia projects, however, a floppy or even a hard disk might not suffice for storage. An alternative is to store student portfolios on a CD-ROM (a compact disk which stores text, sound, graphics and video). A CD-ROM can store approximately 650 MB of information or 300,000 sheets of typed text. This might include all of the portfolios for an entire grade level of students. A computer-based portfolio program also allows for easy transfer of information. An individual computer disk or CD-ROM could be created to transport a student's documents from teacher to teacher or school to school.

Solutions and Examples

There are several commercially available portfolio programs which offer teachers the ability to track student achievement. Aurbach's *Grady Profile* is one program which provides a template for teachers and students to enter work samples. Programs may include writing samples, standardized test scores, oral communication skills, and mathematics assessments. Other software programs, such as Roger Wagner Publishing's *HyperStudio* and Claris' *FileMaker Pro*, allow teachers to create their own templates for portfolio assessment. Educators can use these programs to customize portfolios to suit the needs of their classes. For example, one high school English portfolio might include outlines and drafts for each writing assignment, while another might include only the finished product along with self-reflections by the student.

One school which is involved in creating electronic portfolios for all its students is East Syracuse-Minoa High School in East Syracuse, New York. Students at this high school are creating electronic portfolios which can be sent to colleges as part of the admissions process and to potential employers to determine workplace readiness. This electronic portfolio, called "The Portfolio Manger," was created in *HyperStudio* and contains traditional information about students (transcripts, letters of recommendation, and work history) as well as student-selected work samples (writing samples, multimedia research papers, art work, and video clips from a performance in the school play). The students are responsible for updating and selecting the work samples they include in the portfolio and can select virtually any piece of work that they believe best represents their skills and abilities. Currently, students begin creating portfolios during their sophomore year and continue updating and revising the work samples throughout their high school careers. Upon completion, the portfolio can be distributed in computer disk, CD-ROM, video tape, or print versions.

Summary

The implementation of computer-based portfolios for student assessment is an exciting educational innovation. This method of

assessment not only offers an authentic demonstration of accomplishments, but also allows students to take responsibility for the work they have done. In turn, this motivates them to accomplish more in the future. A computer-based portfolio system offers many advantages for both the education and the business communities and should continue to be a popular assessment tool in the "information age."

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